

AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Withdrawn) A system for determining vasculature specifications comprising:
 - an input means, wherein a user inputs parameters relating to a new application, to populate a model;
 - a pattern recognition means, wherein said model is configured to examine relationships within said populated model to recognize data trends;
 - a visualization means for visualizing said data trends; and
 - a determination means for determining said vasculature specifications based upon said data trends.
2. (Withdrawn) A method for determining optimum vasculature specifications for a new application, comprising:
 - correlating a first set of parameters for an optimum application to develop a model;
 - populating said model a second set of parameters relating to the new application;
 - determining optimum values for a corresponding third set of parameters for said new application using said model.
3. (Withdrawn) The method of claim 2, wherein said first, second, and third set of parameters include at least one of porosity, hydraulic permeability, compressional resilience, and pore size distribution;

4. (Withdrawn) The method of claim 2, wherein said first, second, and third set of parameters are characterized by factors, and wherein said factors are geometry of woven fabric, spacing of yarns in weave, structure of yarns in weave, yarn diameter, cylindrical shape, cylindrical rigidity, heat setting conditions, material characteristics, linear density, number of filaments, tightness, fiber degradation, tissue reaction, ratio of biodegradable to non biodegradable material, ratio of elastomer to a second material, or transverse compliance.

5. (Withdrawn) The method of claim 4, wherein said heat setting conditions are temperature, pressure, or residence time.

6. (Currently amended) A device for maintaining viable eucaryotic cells, comprising:

(a) woven fabric forming an annular compartment, having an annular space, wherein the fabric comprises a biodegradable polymeric fiber and a non-biodegradable material,

(b) at least two additional compartments, adjacent and coaxial to said annular space, where each adjacent compartment contains a liquid, and

(c) an integral aeration supply for the annular space.

7. (Currently amended) The device of claim 6, wherein ~~said woven fabric~~ the non-biodegradable material comprises ~~woven~~ polyester.

8. (Withdrawn) A method of treating a patient in need thereof, the method comprising:

(a) circulating plasma from a patient into a device, comprising:

(i) woven fabric forming an annular compartment, said annular compartment having an annular space and a complement of eukaryotic cells therein,

(ii) at least two additional compartments, adjacent and coaxial to said annular space, where each adjacent compartment contains a liquid,

(iii) an integral aeration supply for the annular space; and

(b) allowing a portion of the plasma to traverse the annular compartment.

9. (Withdrawn) The method of claim 8, wherein said woven fabric comprises woven polyester.

10. (Currently amended) A bioreactor, comprising:

(a) a housing having an inner side comprising: a gas introduction means integral to the housing; and a gas expiration means integral to the housing;

(b) an array of a plurality of modules of textile vasculatures, residing within the housing, each module comprising:

(i) a plurality of coaxial textile vasculatures, each having an inner side and an outer side, including an innermost textile vasculature and an outermost textile vasculature;

(ii) a plurality of compartments, comprising: a first compartment defined by the inner side of the innermost textile vasculature; and

(iii) at least one additional compartment defined by a respective annular space between adjacent fibers of the plurality of coaxial textile vasculatures; and

(c) an outermost compartment defined by a space within the inner side of the housing which is not occupied by the plurality of modules,

wherein the textile vasculature comprises a biodegradable polymeric fiber and a non-biodegradable material.

11. (Currently amended) The bioreactor of claim 10, wherein ~~said textile vasculature~~ the non-biodegradable material comprises ~~woven~~ polyester.

12. (Currently amended) A serially-linked bioreactor, comprising a plurality of bioreactor subunits, each bioreactor subunit comprising:

(a) a housing having an inner side and an outer side, said inner side comprising: a gas introduction means integral to the housing; and a gas expiration means integral to the housing;

(b) an array of a plurality of modules of textile vasculatures, residing within the housing, each module comprising:

(i) a plurality of coaxial textile vasculatures, each having an inner side and an outer side, including an innermost textile vasculature and an outermost textile vasculature;

(ii) a plurality of compartments, comprising: a first compartment defined by the inner side of the innermost textile vasculature; and at least one additional compartment defined by a respective annular space between adjacent vasculatures of the plurality of coaxial textile vasculatures; and

(c) an outermost compartment defined by a space within the inner side of the housing which is not occupied by the plurality of modules; and

(d) at least one compartment of one bioreactor subunit linked serially to at least one compartment of at least one other bioreactor subunit,

wherein the textile vasculature comprises a biodegradable polymeric fiber and a non-biodegradable material.

13. (Currently amended) A bioreactor, comprising:

a hollow structure defined in 3-dimensional space by a woven fabric comprising a biodegradable polymeric fiber and a non-biodegradable material.

14. (Original) A method of cell culture, comprising:

introducing viable cells into a compartment of the bioreactor of claim 10, and passing nutrient medium through coaxially adjacent textile vasculatures.

15. (New) The device of claim 6, wherein the biodegradable material comprises polylactide.